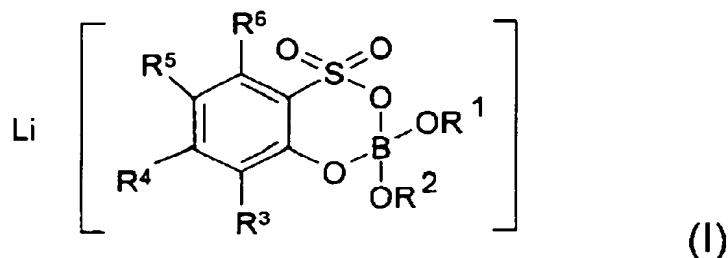


WHAT IS CLAIMED IS:

1. An electrolyte in an electrochemical cell comprising a lithium complex salt of formula



where

R^1 and R^2 are optionally directly linked to one another via a single or double bond, and each, independently is phenyl, naphthyl, anthracenyl or phenanthrenyl, optionally mono- to hexasubstituted by $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

or each independently is pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

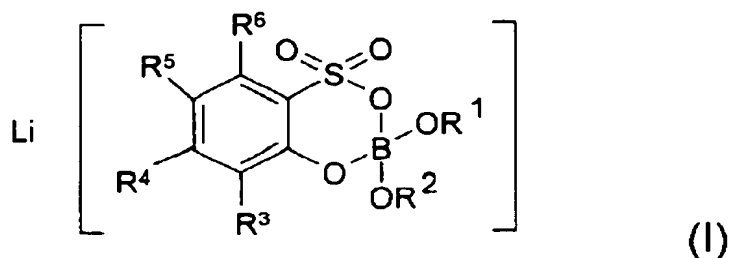
or each independently is hydroxybenzenecarboxyl, hydroxynaphthalenecarboxyl, hydroxybenzenesulfonyl or hydroxynaphthalenesulfonyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy groups or halogen;

ring substituents $\text{R}^3\text{-R}^6$ are optionally directly linked to an adjacent ring substituent via a single or double bond and are $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen, phenyl, naphthyl, anthracenyl or phenanthrenyl,

each optionally mono- to hexasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen.

2. An electrolyte for a secondary lithium battery comprising a lithium complex salt of formula



where

R^1 and R^2 are optionally directly linked to one another via a single or double bond, and each, independently is phenyl, naphthyl, anthracenyl or phenanthrenyl, optionally mono- to hexasubstituted by $\text{C}_1\text{-C}_6$ alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

or each independently is pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

or each independently is hydroxybenzenecarboxyl, hydroxynaphthalenecarboxyl, hydroxybenzenesulfonyl or hydroxynaphthalenesulfonyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy groups or halogen;

ring substituents $\text{R}^3\text{-R}^6$ are optionally directly linked to an adjacent ring substituent via a single or double bond and are $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen, phenyl, naphthyl, anthracenyl or phenanthrenyl,

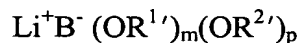
each optionally mono- to hexasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by $\text{C}_1\text{-C}_6$ -alkyl, $\text{C}_1\text{-C}_6$ -alkoxy or halogen;

and at least one additional lithium salt and/or borate complex.

3. The electrolyte of claim 2, wherein the additional lithium salt is LiPF₆, LiBF₄, LiClO₄, LiA₅F₆, LiCF₃SO₃, LiN(CF₃SO₂)₂, or LiC(CF₃SO₂)₃, or a mixture thereof.

4. The electrolyte of claim 2, wherein the borate complex is of the formula



where

m and p are 0, 1, 2, 3 or 4, with m+p=4, and

where

R^{1'} and R^{2'} are optionally directly linked to one another via a single or double bond,

each, independently is an aromatic or aliphatic carboxylic, dicarboxylic or sulfonic acid radical, or

each, independently is an aromatic ring from the group phenyl, naphthyl, anthracenyl or phenanthrenyl, each optionally mono- to tetrasubstituted by A or Hal, or

each, independently is heterocyclic aromatic ring from the group pyridyl, pyrazyl or bipyridyl, each optionally mono- to trisubstituted by A or Hal, or

each, independently is an aromatic hydroxy acid from the group aromatic hydroxy carboxylic acids or aromatic hydroxy sulfonic acids, each optionally mono- to tetrasubstituted by A or Hal,

and

Hal is F, Cl or Br

and

A is alkyl having from 1 to 6 C atoms, and optionally, mono- to trihalogenated.

5. The electrolyte of claim 2, wherein the lithium salt is of the formula:



where R'

is an aromatic or aliphatic carboxylic, dicarboxylic or sulfonic acid radical, or

is an aromatic ring from the group phenyl, naphthyl, anthracenyl or phenanthrenyl which can be unsubstituted or mono- to tetrasubstituted by A or Hal, or

is a heterocyclic aromatic ring from the group pyridyl, pyrazyl or bipyridyl, optionally mono- to trisubstituted by A or Hal, or

is an aromatic hydroxy acid from the group of aromatic hydroxy carboxylic acids or aromatic hydroxy sulfonic acids, optionally mono- to tetrasubstituted by A or Hal,

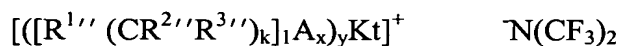
and

Hal is F, Cl or Br

and

A is alkyl having from 1 to 6 C atoms, and optionally, mono- to trihalogenated.

6. The electrolyte of claim 2, further comprising compounds of formula:



where

Kt = N, P, As, Sb, S, Se

A = N, P, P(O), O, S, S(O), SO₂, As, As(O), Sb, Sb(O)

R^{1''}, R^{2''} and R^{3''}, independently are

H, halogen, alkyl C_nH_{2n+1}, optionally substituted; alkenyl having 1-18 carbon atoms and one or more double bonds, optionally substituted; and alkynyl having 1-18 carbon atoms and one or more triple bonds, optionally substituted; cycloalkyl C_mH_{2m-1}, optionally

substituted; heteroaryl, optionally substituted; and phenyl, optionally mono- or polysubstituted,

A optionally at various positions in $R^{1''}$, $R^{2''}$ and/or $R^{3''}$,

Kt optionally at cyclic or heterocyclic rings,

the groups bound to Kt are independent,

where

$n = 1-18$

$m = 3-7$

$k = 0, 1-6$

$l = 1$ or 2 in the case of $x=1$ and 1 in the case $x=0$

$x = 0, 1$

$y = 1-4$.

7. The electrolyte of claim 2, further comprising an electrolyte of formula:



where

X is H, F, Cl, C_nF_{2n+1} , C_nF_{2n-1} , $(SO_2)_kN(CR^{1'''}R^{2'''}R^{3'''})_2$

Y is H, F, Cl

Z is H, F, Cl

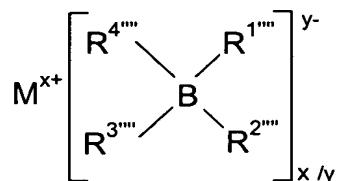
$R^{1'''}$, $R^{2'''}$, $R^{3'''}$ are H and/or alkyl, fluoroalkyl, cycloalkyl

m is 0-9 and if $X=H$, $m \neq 0$

n is 1-9

k is 0, if $m=0$, and $k=1$ if $m=1-9$.

8. The electrolyte of claim 2, wherein the borate complex is a salt of formula:



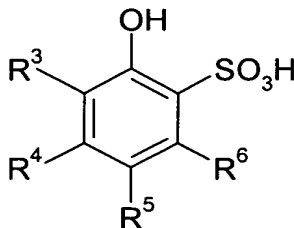
where

M is a metal ion or tetraalkylammonium ion,

x, y are 1, 2, 3, 4, 5 or 6,

$R^{1''''}$ to $R^{4''''}$ are independently C_1 - C_8 -alkoxy or carboxy radicals which are optionally directly linked to an adjacent ring substituent via a single bond or double bond.

9. A method of making an intermediate of formula:

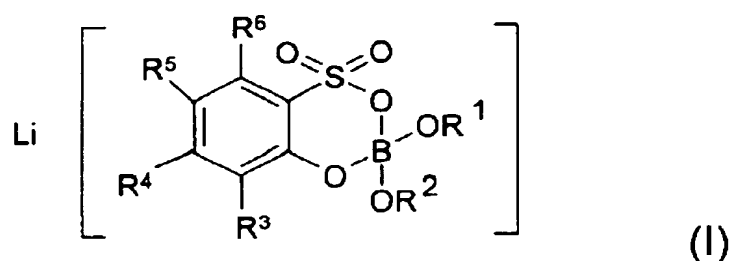


(IV)

ring substituents R^3 - R^6 are optionally directly linked to an adjacent ring substituent via a single or double bond, and are C_1 - C_6 -alkyl, C_1 - C_6 -alkyloxy or halogen; phenyl, naphthyl, anthracenyl or phenanthrenyl, each optionally mono- to hexasubstituted by C_1 - C_6 -alkyl, C_1 - C_6 -alkoxy groups or halogen;

pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by C₁-C₆-alkyl, C₁-C₆-alkoxy or halogen;
with chlorosulfonic acid.

10. An electrochemical cell or a battery comprising an electrolyte comprising a lithium complex salt



where

R¹ and R² are optionally directly linked to one another via a single or double bond, and each, independently is phenyl, naphthyl, anthracenyl or phenanthrenyl, optionally mono- to hexasubstituted by C₁-C₆ alkyl, C₁-C₆-alkoxy or halogen;
or each independently is pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by C₁-C₆-alkyl, C₁-C₆-alkoxy or halogen;
or each independently is hydroxybenzenecarboxyl, hydroxynaphthalenecarboxyl, hydroxybenzenesulfonyl or hydroxynaphthalenesulfonyl, each optionally mono- to tetrasubstituted by C₁-C₆ alkyl, C₁-C₆-alkoxy groups or halogen;
ring substituents R³-R⁶ are optionally directly linked to an adjacent ring substituent via a single or double bond and are C₁-C₆-alkyl, C₁-C₆-alkoxy or halogen, phenyl, naphthyl, anthracenyl or phenanthrenyl,
each optionally mono- to hexasubstituted by C₁-C₆-alkyl, C₁-C₆-alkoxy or halogen;

pyridyl, pyrazyl or pyrimidyl, each optionally mono- to tetrasubstituted by C₁-C₆-alkyl, C₁-C₆-alkoxy or halogen.